

Application No.: 10/644,255
Response to Office Action of July 26, 2005
Attorney Docket: CULLN-001B

REMARKS

Summary of the Amendment

Upon entry of the present Amendment, Claims 1-21 will be canceled without prejudice and new Claims 22-88 will have been added. Accordingly, Claims 22-88 remain currently pending. By the present Amendment and Remarks, Applicant submits that the rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action.

Summary of the Office Action

In the Office Action, numerous double patenting rejections were stated. All of the double patenting rejections are based on the fact that the claims are directed to a process for removing sulfur compounds from a liquid fossil fuel by involving a step of oxidation/sonic energy and a step of hydrodesulfurization. Also, Claims 12-15 were rejected under 35 U.S.C. § 112, second paragraph, because the limitation of "said emulsion" in Claim 12 did not have sufficient antecedent basis. Additionally, the specification was objected to because in Paragraph 0001 the application claimed to be a continuation-in-part of an incorrect application number.

In regard to the substantive rejections, Claims 1, 2, 12-14, and 16-21 were rejected under 35 U.S.C. § 102(b) as being anticipated by Sorgenti (U.S. Patent No. 3,816,301). Claims 6-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sorgenti. Claims 3 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sorgenti in view of Funakoshi et al. (U.S. Patent No. 5,753,102). Claims 4, 11, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sorgenti in view of Gunnerman (U.S. Patent No. 6,500,219).

Applicant's Response

Double Patenting Rejections

All of the double patenting rejections were based on the fact that the claims were directed toward a process for removing sulfur compounds by utilizing an oxidation/sonic

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energy step followed by a hydrodesulfurization step. The claims, as amended, are now directed toward a process for upgrading a crude oil fraction to improve the performance and enhance the utility of the crude oil fraction and do not utilize a hydrodesulfurization step. Accordingly, Applicant respectfully submits that a double patenting issue no longer exists and requests that these rejections be removed.

Section 112, Second Paragraph, Rejection

Claims 12-15 have been hereby canceled. As such, Applicant respectfully submits that the 35 U.S.C. § 112, second paragraph, rejection has been overcome.

Specification Objection

The specification has been amended so that the application claims to be a continuation-in-part of the correct application, i.e., U.S. Patent Application Serial Number 10/431,666. Accordingly, Applicant respectfully submits that the proper correction has been made and the objection has been overcome.

Claims 1-21

Claims 1-21 have been canceled by the present Amendment. Accordingly, the rejections in the Office Action under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) are no longer applicable.

New Claims 22-88

In addition to the foregoing, Applicant has submitted new Claims 22-88 that are in condition for immediate allowance. Claims 22-39 are directed to processes for upgrading a crude oil fraction to improve the performance and enhance the utility of the crude oil fraction, whereby the crude oil fraction is heated in the presence of an oxidizing agent while being subjected to sonic energy. Support for such claims is found in Paragraphs 0003, 0014, and 0021. *See, e.g., Paragraph 0014*, (“...crude oil fraction...can undergo a variety of beneficial conversions and be upgraded in a variety of ways by a process that applies heat and an oxidizing agent, preferably along with sonic energy...”). Claims 40-57 are directed

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to such a process conducted in the absence of an aqueous phase. Support for such claims are found in Paragraphs 0014 and 0030 ("The aqueous fluid that may optionally be combined with the fossil fuel...may be present anywhere from about 0% to 99%...). Claims 58-75 are directed to the main process of the invention being conducted in the absence of a surface active agent. Support for such claims is found in Paragraphs 0032 and 0034 ("In certain embodiments of this invention, a surface active agent...is included..."). Claims 76-88 are directed to the main process of the invention being conducted in the absence of oxidizing agents, such as hydrogen peroxide or hydroperoxides. Support for such claims can be found in Paragraphs 0016 ("alternatively, ... if an oxidizing agent is not utilized in the process of the present invention...") and 0045. Further support for such claims is found in Paragraphs 0014, 0029, 0031, and 0049 ("One of the surprising discoveries associated with certain embodiments of the invention, however, is that in some applications the conversions achieved by this invention can be achieved without the inclusion of hydroperoxide in the reaction mixture.")

Neither the Sorgenti or Gunnerman references, either taken alone or in any proper combination, disclose or teach a process for upgrading a crude oil fraction to improve its performance and enhance its utility, since both references are directed solely toward reducing the sulfur content in a fossil fuel. Not only does the Sorgenti reference, the primary reference relied upon, not teach a process for upgrading a fossil fuel, it most certainly does not teach or disclose such a process utilizing the application of sonic energy.

The Gunnerman reference does disclose the use of sonic energy, but only for the purpose of reducing the sulfur content in a fossil fuel. Furthermore, the Gunnerman reference absolutely requires the presence of a hydroperoxide, a surface active agent, and an aqueous liquid. Alternately, the process of Claims 40-57 is conducted in the absence of an aqueous phase; the process of Claims 58-75 are conducted in the absence of a surface active agent; and the process of Claims 76-88 are conducted in the absence of an oxidizing agent, which would thus omit any type of hydroperoxide. Accordingly, the currently pending claims of the application contain limitations that are not taught or suggested by any prior art references of record either taken alone or in any proper combination. As such, Applicant respectfully submits that these new claims are in condition for immediate allowance.

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Conclusion

In view of the foregoing, Applicant respectfully submits that all of the stated grounds of rejection have been overcome and that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious Applicant's invention as recited in each of Claims 22-88. The applied references of record have been discussed and distinguished, while significant claim features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate. Should the Examiner have any suggestions for expediting the allowance of the application, the Examiner is invited to contact Applicant's representative at the telephone number listed below.

If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,

Date: 12/27/05

By:



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